

CLAIMS

We claim:

1. A measuring device comprising a plurality of excitation/receiving units,
5 wherein each of the excitation/receiving units comprises:
 - a port;
 - at least one receiving apparatus; and
 - at least one oscillator,wherein: (a) the measuring device is adapted to be connected by at least two ports to a
10 device under test; (b) at least one of the excitation/receiving units further comprises at least one signal generator adapted to apply an excitation signal to the device under test; (c) each receiving apparatus has a mixer connected to an oscillator signal, and is adapted to receive the excitation signal, or the signal reflected from the associated port, or the signal transmitted to the associated port and convert said signal into an intermediate frequency signal; and (d) the
15 at least one oscillator is separated from the signal generator and is adapted to produce the oscillator signal for the mixer of the receiving apparatus, whereby a frequency and/or a phase of the oscillator signal is adjustable independently of a frequency and/or a phase of oscillators of other excitation/receiving units.
2. The measurement device in accordance with claim 1, wherein each of the
20 excitation/receiving units has at least one signal generator, and the at least one signal generator is adapted to produce an excitation signal having a frequency and/or a phase adjustable independently of a frequency and/or a phase of the excitation signal of signal generators of other excitation/receiving units.
3. The measurement device in accordance with claim 2, wherein the frequency
25 and/or the phase of the excitation signal of each signal generator is/are adjustable independently of oscillator signal frequency and/or oscillator signal phase.
4. The measurement device in accordance with claim 3, wherein each excitation/receiving unit comprises: (a) a first receiving apparatus with a first mixer adapted to receive a signal received by a port from the device under test, the signal having been
30 reflected from the device under test or transmitted therethrough; and (b) a second receiving apparatus with a second mixer adapted to receive the excitation signal produced from the signal generator of the excitation/receiving unit.

5. The measurement device in accordance with claim 4, wherein the mixer of each excitation/receiving unit is supplied with a common oscillator signal from a common oscillator of the excitation/receiving unit.
6. The measurement device in accordance with claim 1, wherein oscillators and/or signal generators of different excitation/receiving units are connected through control lines that are either decentralized among each other, or centralized by way of a control unit, and through these control lines a frequency and/or phase synchronization takes place.
7. The measurement device in accordance with claim 6, wherein the control lines form a bus system.
8. The measurement device in accordance with claim 7, wherein the bus system is a LAN bus system.
9. The measurement device in accordance with claim 1, wherein the excitation/receiving units are plug-in devices adapted to be inserted into a common housing in such variable numbers as are needed in accordance with a number of required ports.
10. The measurement device in accordance with claim 1, wherein the excitation/receiving units, as stand-alone units, are separated from a main housing and placed proximal to the device under test.
11. The measurement device in accordance with claim 1, wherein the measurement device is a vectorial network analyzer.